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AFRICAN PAUSSID BEETLES IN THE  
COLLECTION OF THE CALIFORNIA  
ACADEMY OF SCIENCES  
(COLEOPTERA: CARABIDAE, PAUSSINAE)

By

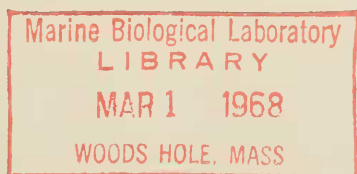
Ed. Luna de Carvalho  
*Museu do Dundo, Luanda, Angola*

A dozen species of paussid beetles have been found as fossils in Baltic amber of the Tertiary period, and there are some 600 living species known. Most are from the tropics, 12 are Neotropical, and two species occur in southern Europe. Burmeister a century ago placed them near the Carabidae in the suborder Adephaga; more recently Jeannel has considered them to be a subfamily of Carabidae in the superfamily Caraboidea.

These peculiar beetles occur in ants' nests, and are structurally adapted for life there. The antennae take extraordinary forms (see figures 1, 5, 12, 16); the deep impressions of the pronotum and other parts often have trichomes, areas of specialized hairs, which may produce secretions attractive to ants. The adults are easily collected with light-traps, but the larvae are very little known—only seven species are described (one from Java, one from Ceylon, and five from Africa). The author has collected in Angola and Mozambique several larvae and pupae of three species of *Paussus* in ant nests, under stones, and in old termite nests occupied by true ants. Several species were found in ant nests under the bark of dead trees.

The collection of the California Academy of Sciences contains a number of paussids from Africa, many of them taken by Dr. E. S. Ross and Mr. R. E. Leech on a 1957-1958 expedition (see National Geographic Magazine for March, 1961). I am grateful to Mr. Hugh B. Leech for the opportunity to study the Academy's material, and for some help with the manuscript. Three new species are described in this paper.

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Family CARABIDAE  
 Subfamily PAUSSINAE  
 Tribe PROTOPAUSSINI  
 Subtribe CERAPTERINA

**Cerapterus (Cerapterus) denoiti f. denoiti** Wasmann.

Specimens, 3 males: Ivory Coast, Ferkéssédougou<sup>1</sup> December, 1956, and March, 1957, Charles B. Beal, collector.

**Cerapterus (Euthysoma) laceratus** Dohrn.

Specimen, 1 male: Southern Rhodesia, Bikita Mines, 1200 m., 19 March 1958, E. S. Ross and R. E. Leech, collectors.

**Cerapterus (Euthysoma) longihamus** Reichensperger.

Specimen, 1 male: Nyasaland, 4 miles east of Katumbi, 1460 m., 20 February 1958, E. S. Ross and R. E. Leech, collectors.

This is the first specimen of *C. longihamus* recorded from outside of the Congo.

**Cerapterus (Orthopterus) pilipennis f. nigra** Wasmann.

Specimen, 1: Nyasaland, 19 miles north of Kasungu, 1100 m., 23 February 1958, E. S. Ross and R. E. Leech, collectors.

**Cerapterus (Orthopterus) smithi f. smithi** Westwood.

Specimen, 1 male: Kenya, 11 miles south of Maktau, Teita Province, 1000 m., 2 November 1957, E. S. Ross and R. E. Leech, collectors.

Tribe HETEROPAUSSINI  
 Genus **Heteropaussus** Thomson  
 Alternans group

**Heteropaussus jeanneli** Reichensperger.

Specimens, 6: Kenya, 11 miles south of Maktau, Teita Province, 1000 m., 2 November 1957, E. S. Ross and R. E. Leech, collectors.

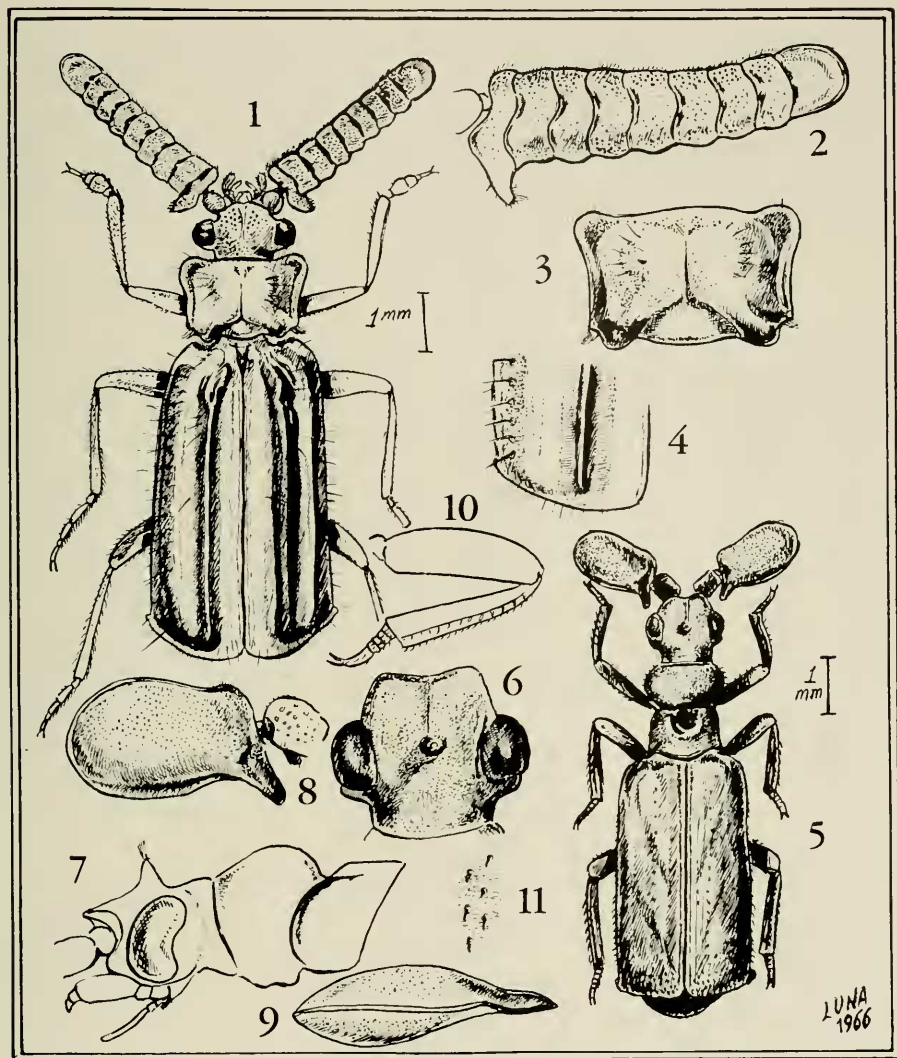
**Heteropaussus rossi** Luna de Carvalho, new species.

(FIGURES 1-4.)

HOLOTYPE. MALE: Nyasaland, 19 miles north of Kasungu, 1100 m., 23 February 1958, E. S. Ross and R. E. Leech, collectors.  
 California Academy of Sciences collection.

DIAGNOSIS. Very similar to my *Heteropaussus kivuensis* but with the lateral sides of prothorax not sinuous, the disc with a few long setae and the antennal club with its basal tooth more slender. Elytra with a row of setiferous tubercles near the marginal sides (not visible in *H. kivuensis*).

<sup>1</sup> See Gazetteer (with the present names of African nations), page 333.



- FIGURE 1. *Heteropaussus rossi*, new species, holotype male.  
 FIGURE 2. *Heteropaussus rossi*, antennal club of holotype.  
 FIGURE 3. *Heteropaussus rossi*, prothorax of holotype.  
 FIGURE 4. *Heteropaussus rossi*, apex of elytra of holotype.  
 FIGURE 5. *Paussus (Paussus) obsti obsti* Wasmann, CAS specimen.  
 FIGURE 6. *Paussus (Paussus) obsti obsti* Wasmann, head.  
 FIGURE 7. *Paussus (Paussus) obsti obsti* Wasmann, head and prothorax, lateral view.  
 FIGURE 8. *Paussus (Paussus) obsti obsti* Wasmann, antennal club.  
 FIGURE 9. *Paussus (Paussus) obsti obsti* Wasmann, antennal club, lateral view.  
 FIGURE 10. *Paussus (Paussus) obsti obsti* Wasmann, fore leg.  
 FIGURE 11. *Paussus (Paussus) obsti obsti* Wasmann, scale-like setae of the elytra.

DESCRIPTION. Head, antennae, prothorax and legs chestnut; elytra orange color with two black bands uniting in the apex. Shining. Head glabrous, deeply punctured and with one longitudinal ridge in the middle. Eyes spherical, neck short. Antennae (fig. 2) with the club like *H. kivuensis*, anterior margin a little curved and the posterior denticulated. Length of the club 4 times longer than broad, densely and coarsely punctured. Basal spurs acute, a little elongated. All antennal club coated with short and fine setae. Prothorax (fig. 3) a little less than  $1\frac{1}{2}$  times broader than long, rectangular, with the anterior angles rounded and prominent, the lateral margin somewhat convex, not sinuous, and the two apical teeth, near the posterior angles, are larger and short. The disc is very finely punctured, shining and has a fine longitudinal ridge in the middle, in each side of the ridge there are a few long setae. Apical trichomerous areas rather little and short. Elytra (fig. 4) less shining than prothorax almost two times longer than broad, glabrous but with long setae in their margins and also with a longitudinal row of the setiferous and little tubercles. One longitudinal and very prominent costa is found on the disc and two feeble costae are seen in the lateral margin. All feet slender, the anterior tarsi shorter than the median and posterior, the first three basal joints are a little longer than others.

MEASUREMENTS. Length 9 mm., width 3.5 mm.; antennal club length 4 mm., width 1 mm.; prothorax length 1.5 mm., width 2.1 mm.; elytrae length 6.5 mm. and width 3.5 mm.

This new species is dedicated to Dr. Edward S. Ross of the California Academy of Sciences.

Tribe PAUSSINI

Subtribe PAUSSINA

Genus *Paussus* Linnaeus

*Cucullatus-boysi-aureofimbratus* group

*Paussus* (*Paussus*) *braunsi* Peringuey.

Specimen, 1 female with three workers of *Pheidole* ants; southern Rhodesia, 12 miles south of Chipinga, 970 m., 19 March 1958, E. S. Ross and R. E. Leech, collectors.

*Paussus* (*Paussus*) *cucullatus* Westwood.

Specimens, 9: Cape Province, Bothas Ridge, 11 miles northeast of Grahamstown, 250 m., 16 April 1958, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

Specimen, 1: Cape Province, 5 miles southwest of Grahamstown, 300 m., 17 April 1958, E. S. Ross and R. E. Leech, collectors.

Specimens, 8: Ruanda, 40 kilometers east of Kigali, 1575 m., 9 December 1957, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

Specimens, 3: Angola, 5 miles west of Nova Lisboa, 27 May 1958, 174 m., E. S. Ross and R. E. Leech, collectors.

Specimen, 1: Nyasaland, 6 miles south of Njakwa, 1100 m., 21 February 1958, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

Specimens, 16: Transvaal, 15 miles west of Pongola, 550 m., 3 April 1958, E. S. Ross and R. E. Leech, collectors.

Specimen, 1: Transvaal, 11 miles north of Louis Trichardt, 800 m., 25 March 1958, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

#### Cochlearius group

**Paussus (Paussus) lecchi** Luna de Carvalho, new species.

(FIGURES 12, and 13.)

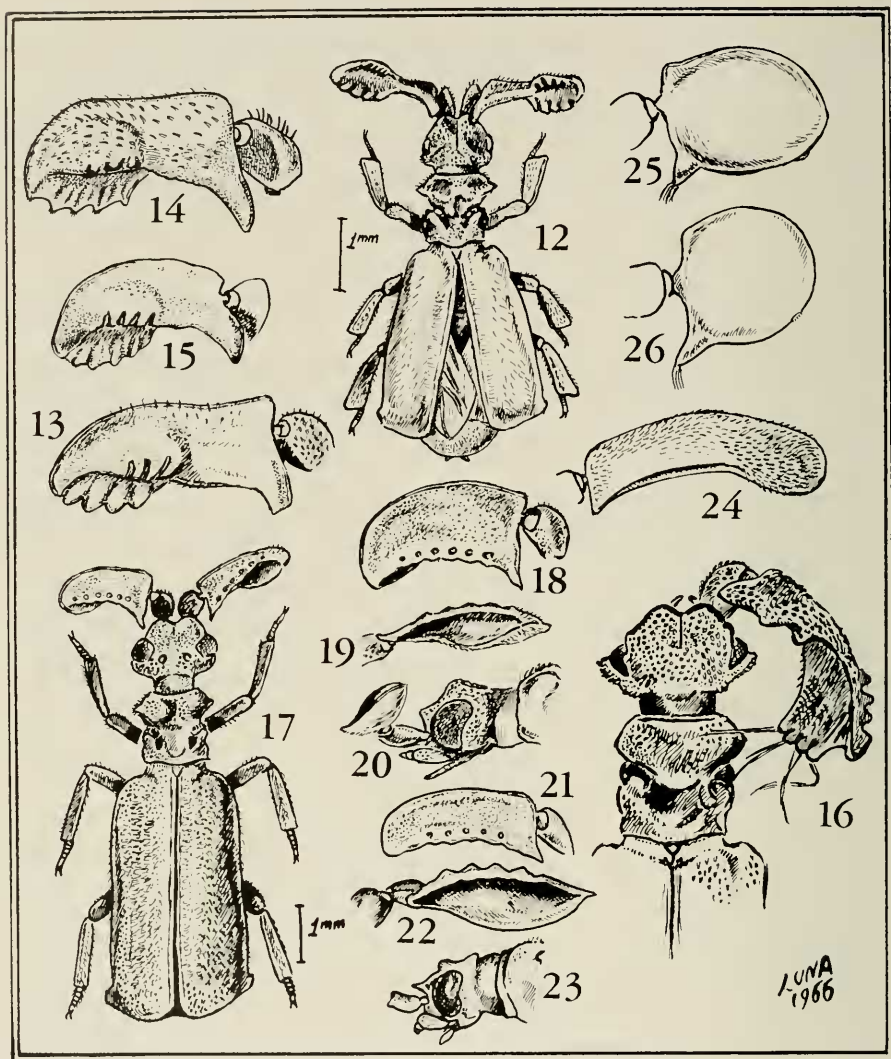
**HOLOTYPE.** FEMALE: Southwest Africa, Kubub, Aus, 1450 m., 5 May 1958, E. S. Ross and R. E. Leech, collectors. A single specimen in the California Academy of Sciences collection. Kubub is the name of a farm some 3 miles east of Aus.

**DIAGNOSIS.** Similar to *Paussus cochlearius* (fig. 14) but with the antennal club (fig. 13) a little longer, its apex more acute and the four teeth of the upper margin more robust.

**DESCRIPTION.** Chestnut brown, somewhat shining; head and first half of prothorax densely punctured, antennal club more or less glabrous and shining. Elytra transversely rugose, very finely punctured and covered with yellow hairs. Head rounded, the eyes not prominent, clypeus with a fine black border and a rather short longitudinal ridge; in the middle of the head, near the eyes, there are two diagonal trichomerous ridges; the middle of the head is profoundly incised. The neck is short. First antennal segment a little longer, finely rugose and with some short setae. Antennal club more shining than the first segment, basal tooth robust and rounded apically; the first half of the club (fig. 13) is laminiform, the apical half is shell-like with four perpendicular striae in the outer margin of the scoop and with five striae in the inner margin. Prothorax bipartite, the anterior part is rugosely punctured and setose, laterally emarginate at front edge of each emargination roundly impressed at middle posteriorly. Elytra subparallel and somewhat shining, the margin is fringed with short setae and its dorsal region has irregular series of short and fine setae. Legs briefly setose with all tibiae compressed and somewhat triangular, tibial spurs absent.

**MEASUREMENTS.** Length (from the clypeus to apex of pygidium) 5.4 mm., width 2.0 mm.; length of antennal club 1.5 mm., width 0.5 mm.; length of prothorax 1.1 mm., width (maximum) 1.1 mm.; length of elytra 3.0 mm., width (the pair) 2.0 mm.

This is the fifth species known until now of the group and the first found in southwest Africa. It is dedicated to Mr. Robin E. Leech of the University of Alberta, who collected many of the beetles reported upon in this list.



- FIGURE 12. *Paussus (Paussus) leechi*, new species, holotype.  
 FIGURE 13. *Paussus (Paussus) leechi*, antennal club of holotype.  
 FIGURE 14. *Paussus (Paussus) cochlearius* Westwood, antennal club.  
 FIGURE 15. *Paussus (Paussus) batillarius* Reichenasperger, antennal club.  
 FIGURE 16. *Paussus (Paussus) upembanus* Janssens, CAS specimen.  
 FIGURE 17. *Paussus (Paussus) araneans*, new species, holotype.  
 FIGURE 18. *Paussus (Paussus) araneans*, antennal club of holotype.  
 FIGURE 19. *Paussus (Paussus) araneans*, the same, lateral view.  
 FIGURE 20. *Paussus (Paussus) araneans*, head of holotype.  
 FIGURE 21. *Paussus (Paussus) degeeri* Westwood, antennal club of holotype.

## Upembanus group

**Paussus (Paussus) upembanus** Janssens.

(FIGURE 16.)

Specimens, 2: Belgian Congo, 44 miles east of Kileba, 1110 m., 16 January 1958, E. S. Ross and R. E. Leech, collectors.

This is the second record of this rare species. The type is known from Upemba National Park. The antennal club of the Kileba specimens (fig. 16) seems to be a little longer than the holotype after Janssens drawings.

## Cerambyx-klugi group

**Paussus (Paussus) distinguendus** Reichensperger.

Specimens, 7: Ruanda, 40 kilometers east of Kigali, 1575 m., 9 December 1957, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

**Paussus (Paussus) klugi** Westwood.

Specimen, 1: Natal, 21 miles southeast of Pietermaritzburg, 600 m., 9 April 1958, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

Specimen, 1: Natal, Umkomaas River, 9 miles south of Richmond, 375 m., 12 April 1958, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

Specimens, 4: Kenya, Kingfisher Canyon, Nairobi Park, 1600 m., 24 November 1957, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

Specimens, 17: Transvaal, 15 miles west of Pongola, 550 m., 3 April 1958, E. S. Ross and R. E. Leech, collectors.

Specimen, 1: Kenya, Athi River, 1550 m., 20 November 1957, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

Specimen, 1: Southern Rhodesia, 6 miles west of Marandellas, 1600 m., 12 March 1958, E. S. Ross and R. E. Leech, collectors.

**Paussus (Paussus) latreillei** Westwood.

Specimen, 1: Nigeria, Kabba, Kabba Province, 23 February 1949, Borys Malkin, collector. With *Pheidole* ants.

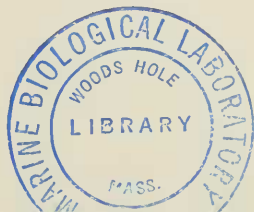
## Lineatus group

**Paussus (Paussus) afzelii** Westwood.

Specimens, 3: Ethiopia, Alomata, 5000 feet, 16 January 1960, E. S. Ross, collector.

These three specimens are similar to the holotype from Caffraria and also

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- ← FIGURE 22. *Paussus (Paussus) degeeri* Westwood, the same, lateral view.  
 FIGURE 23. *Paussus (Paussus) degeeri* Westwood, head of holotype.  
 FIGURE 24. *Paussus (Paussus) germari* Westwood, antennal club of CAS specimen.  
 FIGURE 25. *Paussus (Paussus) sphaerocerus* Afzelius, antennal club of CAS specimen.  
 FIGURE 26. *Paussus (Paussus) sphaerocerus* Afzelius, antennal club of holotypic specimen.



of the same length (5.5 mm.). We have in our private collection three specimens from Adua with a length of 7.5 mm.

***Paussus (Paussus) araneans* Luna de Carvalho, new species.**

(FIGURES 17-20.)

**HOLOTYPE (CAS):** Nyasaland, Mkuwazi Hill Forest, 11 miles south of Nkata Bay, 590 m., 22 February 1958, E. S. Ross and R. E. Leech, collectors. In spider's web.

**DIAGNOSIS.** Allied to *Paussus degeeri* Westwood (figs. 21-23), and chiefly distinguished at once by the shorter and broader antennal club (figs. 18, 19), the vertex of the head (fig. 20) more prominent and all tegument more punctured than in *P. degeeri*.

**DESCRIPTION.** Brown, somewhat shining; head, prothorax and elytra closely and deeply punctured and covered with fine yellowish setae. Head rather transverse and having (between the eyes) two rounded tubercles, which are claudular openings (figs. 18, 20) not shining and with fine punctation, two times longer than wide, curved, anterior margin sharp, apex regularly rounded, posterior one grooved, the upper edge with six small rounded punctures (in *P. degeeri*, fig. 21, there are only five). Prothorax like that of *P. degeeri*, anterior part less broader than the head. Elytra much larger than prothorax and nearly 1½ times longer than wide. Legs a little shorter than in *P. degeeri*, the tibiae subparallel and somewhat compressed.

**MEASUREMENTS.** Length 5.5 mm., width 2.3 mm.; length of antennal club 1.0 mm., width 0.5 mm.; length of prothorax 0.9 mm., width 0.6 mm.; length of elytra 3.3 mm., and width (the pair) 2.3 mm.

The name of this new species is originated to the accidental finding of this *Paussus* in a spider's web, a good example of the wonderful field work of E. S. Ross and R. E. Leech in search of paussid beetles.

Curtisi group

***Paussus (Paussus) curtisi* f. *curtisi* Westwood.**

Specimens, 20: Ruanda, 40 kilometers east of Kigali, 1575 m., 9 December 1957, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

Specimen, 1: Natal, Emakabeleni, 8 miles north of Kranskop, 1075 m., 10 April 1958, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

Specimens, 6: Nyasaland, 6 miles south of Njakwa, 1100 m., 21 February 1958, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

Specimens, 1: Belgian Congo, 69 miles south of Albertville, 1320 m., 13 January 1958, E. S. Ross and R. E. Leech, collectors.

Only the specimen from Natal has the inner tooth of the antennal club a little smaller than in the type. It seems a transition to the *unidentatus* form described by me a few years ago.



## Schaumi group

**Paussus (Paussus) germari** Westwood.

(FIGURE 24.)

Specimens, 2: Transvaal, 10 miles east of Pietersburg, 1200 m., 25 March 1958, E. S. Ross and R. E. Leech, collectors. With a small blackish ant.

The allied *P. schaumi* Westwood occurs in the nest of the ant *Tetramorium weitzeekeni* Emery.

## Culturatus group

**Paussus (Paussus) aldrovandii** Gestro.

Specimens, 2: Belgian Congo, Muye, Park Upemba, 1570 m., 17 January 1958, E. S. Ross and R. E. Leech.

**Paussus (Paussus) cultratus** Westwood.

Specimens, 2: Nyasaland, 6 miles south of Njakwa, 1100 m., 21 February 1958, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

Specimen, 1: Northern Rhodesia, 6 miles north of Kafue, 1050 m., 4 March 1958, E. S. Ross and R. E. Leech, collectors.

Specimen, 1: Transvaal, 15 miles west of Pongola, 550 m., 3 April 1958, E. S. Ross and R. E. Leech, collectors.

Specimen, 1: Natal, 10 miles north of Ubombo, 160 m., 4 April 1958, E. S. Ross and R. E. Leech, collectors.

## Cephalotes-bohemani group

**Paussus (Paussus) massarti** Reichensperger.

Specimen, 1 male: Angola, Lunda, Saurimo, 10 January 1950, Padre Eduardo, collector. (Reichensperger determination.)

This species was only known, in Angola, from Monte Moco.

## Favieri group

**Paussus (Paussus) favieri** Fairmaire.

Specimens, 4: Tunisia, Le Chennes, 23 March 1933, Van Dyke collection.

All specimens with one soldier and one worker of *Pheidole pallidula* Nylander, the host of this tiny palearctic paussid.

## Armatus-foliicornis-woerdeni group

**Paussus (Paussus) arabicus** Raffray.

Specimen, 1 female: Nigeria, Lokoja, Kabba, 26 February 1949, Borys Malkin, collector. (Reichensperger determination.)

***Paussus (Paussus) armatus* Westwood.**

Specimens, 9: Nigeria, Lokoja, Kabba, 26 February 1949, Borys Malkin, collector.

Specimen, 1 female: Nigeria, Kabba, 20 February 1949, B. Malkin, collector. (Reichensperger determination.)

Specimen, 1: Nigeria, Zaria, 6–12 March 1949, B. Malkin, collector.

Specimen, 1: Nigeria, Bornu, Maiduguri, 1–5 June 1945, A. R. Mead, collector. (Reichensperger determination.)

Specimen, 1 male: Ivory Coast, Boundiali, elevation 403 m., C. B. Beal, collector. (Reichensperger determination.)

Specimen, 1 male: Dahomey, Kandi, 27–29 November 1948, B. Malkin, collector. (Reichensperger determination.)

***Paussus (Paussus) foliicornis* Wasmann.**

Specimens, 4: Kenya, 11 miles south of Maktau, Teita Province, 1000 m., 2 November 1957, E. S. Ross and R. E. Leech, collectors.

***Paussus (Paussus) insularis* Reichensperger.**

Specimens, 2: Kenya, 11 miles south of Maktau, Teita Province, 1000 m., 2 November 1957, E. S. Ross and R. E. Leech, collectors.

***Paussus (Paussus) obsti obsti* Wasmann.**

(FIGURES 5–11.)

Specimen, 1: Sudan, Kordofan Province, Kadugli, July, 1952, C. Sweeney, collector.

This is the third record of this species, described in 1922 from German East Africa, and the first record for Sudan. The antennal club (figs. 8–9) of the male is longer than that of the female.

The measurements of this specimen are: Length 8.5 mm. (the type 10 mm.), width 2.5 mm.; antennal club length 1.8 mm., width 1.4 mm. ( $\frac{1}{2}$  longer than broad as in the typical diagnosis); prothorax length  $\frac{1}{2}$  mm., width 1.4 mm.; elytra length 4.7 mm., and width 2.5 mm.

***Paussus (Paussus) obsti* v. *rectidens* Wasmann.**

Specimen, 1: Nigeria, Bornu, Maiduguri, 1–5 June 1945, A. R. Mead, collector.

***Paussus (Paussus) somaliae* Reichensperger.**

Specimen, 1: Kenya, 2 miles east of Taveta, 840 m., 29 October 1957, E. S. Ross and R. E. Leech, collectors.

This is the first record of this species found outside of Somalia.

***Paussus (Paussus) rusticus* Péringuey.**

Specimen, 1 male: Southeast Angola, Cuchi, Menongue, December, 1950, Padre Eduardo, collector. (Reichensperger determination.)

**Paussus (Paussus) sphaerocerus** Afzelius.

(FIGURES 25, 26.)

Specimen, 1: Ivory Coast, Ferkéssédougou, March, 1957, Charles B. Beal, collector.

Specimen, 1: Nigeria, Lokoja, Kabba, 26 February 1949. Borys Malkin, collector. (P. J. Darlington, Jr., determination.)

The antennal club of the Ivory Coast specimen is a little larger than the holotypic one (fig. 26).

**Paussus (Paussus) woerdeni** Ritsema.

Specimens, 3: Belgian Congo, 24 miles northeast of Lubefu, 12 August 1957, E. S. Ross and R. E. Leech, collectors.

## Spinicoxis group

**Paussus (Paussus) cridae** Gestro.

Specimens, 6: Belgian Congo, 25 miles south of Idiofa, 7 August 1957, E. S. Ross and R. E. Leech, collectors.

Specimen, 1: Belgian Congo, 39 miles northeast of Elizabethville, 1225 m., 22 January 1958, E. S. Ross and R. E. Leech, collectors.

Specimens, 3: Belgian Congo, Kolwezi, 1500 m., 1957, V. G. Allard, collector.

Specimens, 2: Belgian Congo, 69 miles south of Sampwe, 980 m., 21 January 1958, E. S. Ross and R. E. Leech, collectors.

Specimen, 1 male: Angola, Saurimo, November, 1949, Padre Eduardo. (Reichensperger determination.)

**Paussus (Paussus) spinicoxis** Westwood.

Specimens, 5: Transvaal, 15 miles west of Pongola, 550 m., 3 April 1958, E. S. Ross and R. E. Leech, collectors.

Specimen, 1: Northern Rhodesia, Abercorn, 1600 m., 16 February 1958, E. S. Ross and R. E. Leech, collectors.

Specimen, 1: Northern Rhodesia, Senga Hill, 40 miles south of Abercorn, 1580 m., 12 February 1958, E. S. Ross and R. E. Leech, collectors.

Specimen, 1: Northern Rhodesia, 11 miles north of Chingola, 1330 m., 8 February 1958, E. S. Ross and R. E. Leech, collectors.

Specimen, 1: Swaziland, Eranchi, 5-10 January 1955, A. L. Capener, collector.

Specimen, 1: Kenya, Athi River, 1550 m., 20 November 1957, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

Specimens, 2: Kenya, Kingfisher Canyon, Nairobi Park, 1600 m., 24 November 1957, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

Specimens, 3: Tanganyika, 32 miles southeast of Sumbawanga, 1590 m., 13 February 1958, E. S. Ross and R. E. Leech, collectors.

Specimens, 2: Tanganyika, Seronera, Serengeti Plain, 1580 m., 24 October 1957, E. S. Ross and R. E. Leech, collectors. With ants.

Manicanus-spencei group

**Paussus (Paussus) planicollis** Raffray.

Specimen, 1: Kenya, Athi River, 1550 m., 20 November 1957, E. S. Ross and R. E. Leech, collectors.

Inermis-procerus-centurio group

**Paussus (Paussus) burgeoni** ssp. **burgeoni** Reichensperger.

Specimen, 1 male: Nyasaland Mkuwazi Hill Forest, 11 miles south of Nkata Nay, 590 m., 22 February 1958, E. S. Ross and R. E. Leech, collectors. This is the first record of *P. burgeoni* in Nyasaland.

**Paussus (Paussus) laevifrons** Westwood.

Specimen, 1 male: Ivory Coast, Boundiali, elevation 403 m., 15 March 1952, C. B. Beal, collector. (Reichensperger determination.)

**Paussus (Paussus) procerus** Gerstaeker.

Specimens, 5: Kenya, 12 miles east of Narok, 31 December 1959, E. S. Ross, collector.

Specimen, 1 female: Kenya, 25 miles south of Marigat, near Lake Baringo, 29 December 1959, E. S. Ross, collector.

Specimen, 1: Kenya, 11 miles south of Maktau, Teita Province, 1000 m., 2 November 1957, E. S. Ross and R. E. Leech, collectors.

Specimen, 1: Eritrea, 15 miles north of Asmara, 18 February 1960, E. S. Ross, collector.

**Paussus (Paussus) stolzi** Kolbe.

Specimen, 1: Nyasaland, 12 miles southwest of Ekwendeni, 1230 m., 22 February 1958, E. S. Ross and R. E. Leech, collectors.

Genus *Granulopaussus* Kolbe

**Granulopaussus granulatus** (Westwood).

Specimen, 1 female: Cape Province, 1 mile east of Engcobo, 1000 m., 14 April 1958, E. S. Ross and R. E. Leech, collectors. With *Pheidole* ants.

**Granulopaussus sankuruensis** (Reichensperger).

Specimens, 2 females: Belgian Congo, 27 miles southeast of Kienge, 1150 m., 22 January 1958, E. S. Ross and R. E. Leech, collectors.

## GAZETTEER

<i>Localities</i>	<i>Nations</i>	<i>Coordinations</i>	<i>Alt. in m.</i>	<i>Observations</i>
Abercorn	Zambia	8.50 S., 31.24 E.	1580	40 miles S.
Abercorn	Zambia	8.50 S., 31.24 E.	1600	
Albertville	Belgian Congo	5.17 S., 29.10 E.	1320	69 miles
Alomata	Ethiopia	12.27 N., 39.35 E.	1500	
Asmara	Eritrea	15.20 N., 39.35 E.		
Athi River	Kenya	1.28 S., 36.59 E.	1550	
Aus	S.W. Africa	26.40 S., 16.15 E.	1450	
Baring Lake				See Marigat
Bikita Mines	Rhodesia	20.06 S., 31.41 E.	1200	
Bornu				See Maiduguri
Bothas Ridge				See Grahamstown
Boundiali	Ivory Coast	9.30 N., 6.31 W.		
Chingola	Zambia	12.31 S., 27.35 E.	1330	11 miles N.
Chipinga	Rhodesia	20.12 S., 32.38 E.	970	12 miles S.
Cuchi	Angola	14.40 S., 16.38 E.		S.E. Angola
Ekwendeni	Malawi		1230	12 miles S.W.
Elizabethville	Belgian Congo	11.41 S., 27.29 E.	1225	39 miles N.E.
Emakabeleni				See Kranskop
Engcobo	S. Africa	31.40 S., 28.00 E.	1000	1 mile E.
Eranchi	Swaziland			
Ferkéssédougou	Ivory Coast	9.30 N., 5.10 W.		
Grahamstown	S. Africa	33.19 S., 26.32 E.	250	11 miles N.
Grahamstown	S. Africa	33.19 S., 26.32 E.	300	5 miles S.W.
Idiofa	Belgian Congo	5.00 S., 19.38 E.		
Kabba	Nigeria	7.50 N., 6.07 E.		
Kadugli	Sudan	11.00 N., 29.44 E.		
Kafue	Zambia	15.44 S., 28.10 E.		6 miles N.
Kandi	Dahomey	11.05 N., 2.59 E.		
Kasungu	Malawi	13.04 S., 33.29 E.	1100	19 miles N.
Katumbi	Kenya	2.56 S., 40.05 E.	1460	4 miles E.
Kienge	Belgian Congo	10.33 S., 27.33 E.	1150	27 miles S.E.
Kigali	Ruanda	1.59 S., 30.05 E.	1575	40 kilometers E.
Kileba	Belgian Congo	8.45 S., 27.24 E.	1110	44 miles E.
Kingfisher Canyon	Kenya		1600	Nairobi Park
Kolwezi	Belgian Congo	10.44 S., 25.28 E.	1500	
Kranskop	Kenya	28.58 S., 30.52 E.	1075	8 miles N.
Kubub	S.W. Africa	26.40 S., 16.15 E.		Farm near Aus
Le Chennes	Tunisia			
Lokoja	Nigeria	7.49 N., 6.44 E.		
Louis Richardt	S. Africa	23.01 S., 29.43 E.	800	11 miles N.
Lubefu	Belgian Congo	4.43 S., 24.25 E.		
Maiduguri	Nigeria	11.53 N., 13.16 E.		
Maktau	Kenya	3.25 S., 38.08 E.	1000	11 miles S.
Marandellas	Rhodesia	18.10 S., 31.36 E.	1600	6 miles W.
Marigat	Kenya			
Maritzburg	S. Africa		1580	See Pietermaritzburg
Mkwazi Hill				See Nkata Bay
Monte Moco	Angola	12.13 S., 15.19 E.	2000	
Muye	Belgian Congo		1570	Upemba National Park
Narok	Kenya	1.04 S., 35.54 E.		
Ngonga Hills	Kenya	1.22 S., 36.40 E.	1780	

## GAZETTEER

Localities	Nations	Coordinates	Alt. in m.	Observations
Njakwa	Malawi		1100	6 miles S.
Nkata Bay	Malawi	11.37 S., 32.40 E.	590	11 miles S.
Nova Lisboa	Angola	12.47 S., 15.44 E.	1740	5 miles W.
Pietermaritzburg	S. Africa	29.36 S., 30.24 E.	600	21 miles S.W.
Pietersburg	S. Africa	23.54 S., 29.23 E.	1200	10 miles E.
Pongola	S. Africa	27.23 S., 31.38 E.	550	15 miles W.
Richmond	S. Africa	29.53 S., 30.17 E.	375	9 miles S.
Sampwe	Belgian Congo	9.22 S., 27.26 E.	980	69 miles S.
Saurimo	Angola	9.40 S., 20.23 E.		Angola N.E.
Senga Hill	Zambia	9.24 S., 31.13 E.	1580	40 miles S.
Serengeti Plain				See Seronera
Seronera	Tanganyika		1580	
Sokodé	Togo	8.59 N., 1.11 E.		
Sumbawanga	Tanzania	7.58 S., 31.36 E.		
Taveta	Kenya	3.23 S., 37.40 E.	840	2 miles E.
Ubombo	S. Africa	27.35 S., 32.05 E.	160	10 miles N.
Umkomaas River				See Richmond
Zaria	Nigeria	11.01 N., 7.44 E.		

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